

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. through 3. (cancelled).

4. (currently amended): A digital camera that captures object light and generates an image signal, comprising:

a taking lens having a variable focal length and comprising three or more lens groups including a front lens group, which is disposed forward along an optical axis;

a lens barrel that has an inner space for housing the taking lens and is capable of being extended or collapsed, the inner space having an opening for the front lens group to see the outside on the front thereof and being defined by a wall at the rear thereof, and the focal length being adjusted when the lens barrel is extended; and

a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall,

wherein the lens barrel has a lens group retraction/advancement mechanism which, when the lens barrel is collapsed, retracts a first lens group into a front lens group side space and retracts a second lens group into a recess section, which is defined by the solid-state image pickup device and the wall in a space at the side of the solid-state image pickup device, and, when the lens barrel is extended, advances both the first lens group and the second lens group onto the optical axis, the first lens group being one of the three or more lens groups constituting

the taking lens which is other than the front lens group, and the second lens group being one other than the front lens group and the first lens group;

wherein the lens barrel comprises:

a first lens group guiding frame that moves along the optical axis and positions the first lens group along the optical axis;
a first lens group holding frame that holds the first lens group, is pivotally supported on the first lens group guiding frame, rotates the first lens group to bring the first lens group onto the optical axis when the lens barrel is extended and rotates the first lens group to bring the first lens group into the front lens group side space when the lens barrel is collapsed;

a second lens group guiding frame that moves along the optical axis and positions the second lens group along the optical axis; and

a second lens group holding frame that holds the second lens group, is pivotally supported on the second lens group guiding frame, rotates the second lens group to bring the second lens group onto the optical axis when the lens barrel is extended and rotates the second lens group to bring the second lens group into the recess section when the lens barrel is collapsed;

wherein the digital camera further comprises:

a light quantity controlling member that is housed in the lens barrel, moves integrally with the first lens group along the optical axis of the taking lens and, when the light quantity controlling member is disposed on the optical axis, controls-varies the quantity of object light passing through the taking lens in a direction of the optical axis,

wherein the first lens group holding frame retracts the light quantity controlling member integrally with the first lens group into the front lens group side space when the lens barrel is collapsed and advances the light quantity controlling member integrally with the first lens group onto the optical axis when the lens barrel is extended.

5. (currently amended): A digital camera that captures object light and generates an image signal, comprising:

a taking lens having a variable focal length and comprising three or more lens groups including a front lens group, which is disposed forward along an optical axis;

a lens barrel that has an inner space for housing the taking lens and is capable of being extended or collapsed, the inner space having an opening for the front lens group to see the outside on the front thereof and being defined by a wall at the rear thereof, and the focal length being adjusted when the lens barrel is extended; and

a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall,

wherein the lens barrel has a lens group retraction/advancement mechanism which, when the lens barrel is collapsed, retracts a first lens group into a front lens group side space and retracts a second lens group into a recess section, which is defined by the solid-state image pickup device and the wall in a space at the side of the solid-state image pickup device, and, when the lens barrel is extended, advances both the first lens group and the second lens group onto the optical axis, the first lens group being one of the three or more lens groups constituting

the taking lens which is other than the front lens group, and the second lens group being one other than the front lens group and the first lens group;

wherein the lens barrel comprises:

a first lens group guiding frame that moves along the optical axis and positions the first lens group along the optical axis;
a first lens group holding frame that holds the first lens group, is pivotally supported on the first lens group guiding frame, rotates the first lens group to bring the first lens group onto the optical axis when the lens barrel is extended and rotates the first lens group to bring the first lens group into the front lens group side space when the lens barrel is collapsed;

a second lens group guiding frame that moves along the optical axis and positions the second lens group along the optical axis; and
a second lens group holding frame that holds the second lens group, is pivotally supported on the second lens group guiding frame, rotates the second lens group to bring the second lens group onto the optical axis when the lens barrel is extended and rotates the second lens group to bring the second lens group into the recess section when the lens barrel is collapsed;

wherein the digital camera further comprises:

a light quantity controlling member that is housed in the lens barrel, moves integrally with the second lens group along the optical axis of the taking lens and, when the light quantity controlling member is disposed on the optical axis, varies controls the quantity of object light passing through the taking lens in a direction of the optical axis,

wherein the second lens group holding frame retracts the light quantity controlling member integrally with the second lens group into the recess section when the lens barrel is collapsed and advances the light quantity controlling member integrally with the second lens group onto the optical axis when the lens barrel is extended.

6. (original): The digital camera according to claim 4, wherein the light quantity controlling member comprises an electrooptic element.

7. (original): The digital camera according to claim 5, wherein the light quantity controlling member comprises an electrooptic element.

8. (original): The digital camera according to claim 4, wherein the light quantity controlling member is a diaphragm member that controls the aperture to control the quantity of object light passing through the taking lens.

9. (original): The digital camera according to claim 5, wherein the light quantity controlling member is a diaphragm member that controls the aperture to control the quantity of object light passing through the taking lens.

10. (original): The digital camera according to claim 4, wherein the light quantity controlling member is a shutter member that controls the shutter speed to control the quantity of object light passing through the taking lens.

11. (original): The digital camera according to claim 5, wherein the light quantity controlling member is a shutter member that controls the shutter speed to control the quantity of object light passing through the taking lens.

12. (currently amended): A digital camera that captures object light and generates an image signal, comprising:

a taking lens having a variable focal length and comprising three or more lens groups including a front lens group, which is disposed forward along an optical axis;

a lens barrel that has an inner space for housing the taking lens and is capable of being extended or collapsed, the inner space having an opening for the front lens group to see the outside on the front thereof and being defined by a wall at the rear thereof, and the focal length being adjusted when the lens barrel is extended; and

a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall,

wherein the lens barrel has a lens group retraction/advancement mechanism which, when the lens barrel is collapsed, retracts a first lens group into a front lens group side space and retracts a second lens group into a recess section, which is defined by the solid-state image pickup device and the wall in a space at the side of the solid-state image pickup device, and, when the lens barrel is extended, advances both the first lens group and the second lens group onto the optical axis, the first lens group being one of the three or more lens groups constituting

the taking lens which is other than the front lens group, and the second lens group being one other than the front lens group and the first lens group;

wherein the lens barrel comprises:

a first lens group guiding frame that moves along the optical axis and positions the first lens group along the optical axis;
a first lens group holding frame that holds the first lens group, is pivotally supported on the first lens group guiding frame, rotates the first lens group to bring the first lens group onto the optical axis when the lens barrel is extended and rotates the first lens group to bring the first lens group into the front lens group side space when the lens barrel is collapsed;

a second lens group guiding frame that moves along the optical axis and positions the second lens group along the optical axis; and
a second lens group holding frame that holds the second lens group, is pivotally supported on the second lens group guiding frame, rotates the second lens group to bring the second lens group onto the optical axis when the lens barrel is extended and rotates the second lens group to bring the second lens group into the recess section when the lens barrel is collapsed;

wherein the digital camera further comprises:

a first light quantity controlling member that is housed in the lens barrel, moves integrally with the first lens group along the optical axis of the taking lens and, when the first light quantity controlling member is disposed on the optical axis, varies controls the

quantity of object light passing through the taking lens in a direction of the optical axis;

and

a second light quantity controlling member that moves integrally with the second lens group along the optical axis and, when the second light quantity controlling member is disposed on the optical axis, varies controls the quantity of object light passing through the taking lens in a direction of the optical axis,

wherein, when the lens barrel is collapsed, the first lens group holding frame retracts the first light quantity controlling member integrally with the first lens group into the front lens group side space, and the second lens group holding frame retracts the second light quantity controlling member integrally with the second lens group into the recess section, and, when the lens barrel is extended, the first lens group holding frame advances the first light quantity controlling member integrally with the first lens group onto the optical axis of the taking lens, and the second lens group holding frame advances the second light quantity controlling member integrally with the second lens group onto the optical axis.

13. (original): The digital camera according to claim 12, wherein at least one of the first and second light quantity controlling members comprises an electrooptic element.

14. (original): The digital camera according to claim 12, wherein at least one of the first and second light quantity controlling members is a diaphragm member that controls the aperture to control the quantity of object light passing through the taking lens, and the other of the first

and second light quantity controlling members is a shutter member that controls the shutter speed to control the quantity of object light passing through the taking lens.

15. and 16. (cancelled).